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Frambach, R.T.; Ingenbleek, P.; Debruyne, M.; Verhallen, T.M.M.

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Paul Ingenbleek
Marion Debruyne
Ruud T. Frambach
Theo M.M. Verhallen

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Paul Ingenbleek

Marion Debruyne

Ruud T. Frambach

Theo M.M. Verhallen

November 200 1

Author Information

Authors' Affiliations:.

Paul Ingenbleek is a doctoral candidate in marketing at Tilburg University, The Netherlands.

Marion Debruyne is a doctoral candidate in marketing at the University of Ghent and theVlerick School of Management, Belgium.

Ruud T. Frambach is a professor of marketing at the Vrije Universiteit Amsterdam, The Netherlands.

Theo M.M. Verhallen is a professor of marketing and dean of the faculty of economics and business administration at Tilburg University, The Netherlands.

Correspondence:
Paul Ingenbleek
Tilburg University
Department of Marketing
PO Box 90153
5000 LE Tilburg
The Netherlands
e-mail: P.T.M.Ingenbleek@kub.nl
Phone: +31 13 4668212
Fax: +31 13 466 2875

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ON COST-INFORMED PRICING AND CUSTOMER VALUE: A RESOURCE-ADVANTAGE PERSPECTIVE ON INDUSTRIAL INNOVATION PRICING PRACTICES

Abstract

By empirically testing a framework of pricing strategies and their determinants in an industrial setting, Noble and Gruca (1999a) help to overcome the lack of empirical validation of pricing theory. In a commentary to the article, Cressman (1999) (1) expresses worries about the high percentage of firms that engages in tost-based pricing; (2) raises a definition question on value-based pricing; and (3) stresses that empirical pricing literature does not provide ideas on *successful* pricing practices in relation to customer value created. The aim of this study is to respond to calls for research on successful pricing practices. A perspective from resource-advantage theory (Hunt and Morgan 1995) is used to formulate expectations on the degree to which the use of information on customer value, competition, and costs contributes to the success of a price decision. It is argued that the success of these practices is contingent on the relative customer value the firm has created and the degree to which this position of relative value is sustainable in the competitive market place. These expectations are empirically tested on pricing decisions with respect to the introduction of new industrial capita1 goods. It is concluded that Noble and Gruca's (1999a) findings on tost-based pricing can be complemented, since our results show that under most circumstances tost-informed pricing makes an important contribution to the success of a price setting. The positive effect of tost-informed pricing on pricing success is particularly important in situations of high competitive intensity. Value-informed pricing has in this situation a negative impact

on pricing success. In situations where the firm introduces a new product with high relative value, value-informed pricing contributes more and competition-informed pricing contributes less to pricing success. Cost-informed pricing has no effect on the success of a price decision in this situation. In addition, our study comes across several measurement issues that may have influenced results of prior surveys on pricing practices. By providing a theoretical foundation and empirical evidence on successful organizational pricing practices in relation to customer value, the authors hope to introduce a perspective on pricing that contributes to an understanding of how price decisions are actually made in business.

(Pricing Research; Industrial Marketing; Competitive Strategy)

INTRODUCTION

By empirically testing a framework of pricing strategies and their determinants in an industrial setting, Noble and Gruca (1999a) help to overcome the lack of empirical validation of pricing theory (Monroe and Mazumdar 1988). Their research effort made clear that our understanding of how price decisions are made by organizations is still far from complete (Cressman 1999, Noble and Gruca 1999b). In a commentary to the article, Cressman (1999) raised three important issues regarding Noble and Gruca's (1999a) findings.

First, Cressman expresses worries about the high percentage of firms in Noble and Gruca's (1999a) sample that engages in tost-based pricing (56 %), suggesting that these firms are ignorant towards the market in price decisions. These worries reflect the general belief in marketing that tost-based pricing is a bad practice (e.g. Dean 1950, Nagle and Holden 1990). Although Coe (1990) shows that an increase of tost-based pricing goes hand in hand with a decrease of innovation strategies, the lack of effectiveness of cost-based pricing has so far been an assumption that is never tested. Second, Cressman raises a definition question: What is value(-based) pricing? Does value-based pricing refer to a pricing strategy as 'a means by which a pricing objective is to be achieved' (Noble and Gruca 1999a, p. 436), or does value-based pricing refer to the use of information on customer value in a pricing decision? Third, Cressman stresses that empirical pricing literature does not provide studies on *successful* pricing practices in relation to the firm's efforts to create customer value: 'How is it possible that we advocate managers adopt a market orientation, but the literature fails to link pricing practices with the drivers of customer needs? If pricing practice is seen as the means through which managers

"harvest" the "seeds" planted in a market-oriented strategy process, why are there no pricing practices based on the value delivered to customers in the marketing literature?' (Cressman 1999, p. 456).

The third issue is of special importance because it does not relate to research findings or definitions of concepts, but to the relevance of the research question itself. Rather than examining to what extent firms base prices on customer value, costs, or other information, Cressman actually argues that researchers should examine under which value-creating conditions the use of this information leads to successful pricing decisions. This comment is in line with prior calls for research on how firms set prices. Monroe and Mazumdar (1988) see a lack of understanding of how price decisions are actually made as a major shortcoming in pricing literature, while Bonoma, Crittenden and Dolan (1988) even suggest that it brought about a lack of managerial relevance of pricing literature in general. Cressman's critique led Noble and Gruca (1999b, p. 459) echoe these calls, stating that: 'Research on successful pricing process should be a major priority for future research. In such a research endeavor, the definitions of customer value and value-based pricing should be clear enough to avoid the potential for confùsion between academic and practitioner users of the results.'

In this paper, we aim to contribute to answering Noble and Gruca's (1999b) call, taking into account Cressman's (1999) useful suggestions. In particular, we will make three contributions to empirical pricing literature. First, our study is the first to examine the success of three pricing practices with respect to different types of information used in a pricing process (respectively on costs, customer value and competition). Second, we will do so in relation to the relative customer value offered by new products and the

degree of sustainability of this value. The theoretical foundation for this is provided by the resource-advantage theory of competition (Hunt and Morgan 1995, 1997). Third, our study comes across several measurement issues that may have influenced Noble and Gruca's (1999a) findings, as well as other prior surveys on pricing practices. Like Noble and Gruca (1999a) we present data from industrial capita1 industries, which can be used for a possible reinterpretation of their findings on the use of cost information in pricing. Our results reveal that the success of information on value, competition and costs is contingent on the relative value offered by a product, as well as on the degree to which value is sustainable in the market. This suggests that there is no genera1 "bad" or "best" practice with respect to the type of information used in price decisions.

In the next section we will introduce the concepts included in our study. Next, we use resource-advantage theory (Hunt and Morgan 1995) to formulate expectations on the conditions under which information on costs, competition and customer value contibutes to successful price decisions. The expectations are tested on 77 introductions of industrial capita1 goods. The empirical method and results are presented next. In the discussion section we will discuss why Noble and Gruca's (1999a) results may be influenced by several measurement issues, and how they should be interpreted in the light of the findings obtained in our study. We conclude with some interesting avenues for future research.

CONCEPTS

Pricing practices should be distinguished from pricing objectives and pricing strategies. Pricing objectives refer to what the firm is trying to accomplish with its price setting, and

pricing strategy refers to the means by which a pricing objective is to be achieved in the market (Noble and Gruca 1999a). Pricing practices on the other hand, refer to the set of activities executed by an organization's managers that lead to a price decision.[1] As such, pricing practices occur in the context of an organizational process, leading to decisions on pricing strategies and price levels. Thus, whereas pricing strategies are visible in the market in the form of price changes, price bundles, price levels within a product line, or otherwise, pricing practices are hidden behind the boundaries of the organization. Following Day (1994) we consider pricing to be an organizational process of information gathering, exchange and interpretation, that involves discussion and negotiations between different business functions such as marketing, production and finance. This view on the pricing process is in line with qualitative work on pricing in organizations (e.g. Bonoma, Crittenden and Dolan 1988, Hague 1971, Foxall 1972, Pearce 1956).

The empirical pricing literature generally distinguishes among three types of pricing practices (e.g. Piercy 1981, Tzokas, Hart, Argouslidis and Saren 2000, Udell 1972), respectively based on the use of information regarding (1) customer value (following Hunt and Morgan (1995), defined as the sum of total benefits customers perceive they will receive if they accept the market offering); (2) competition (here defined as prices of competitors' products interpreted in the light of their relative market positions); and (3) costs (here defined as the variable and fixed costs with respect to the development, production and marketing of the new product). These different types of information are

[1] Prior contributions to empirical pricing literature (e.g. Tzokas, Hart, Agrouslidis and Saren 2000) often use the term pricing methods to indicate the activities by which firms arrive at price settings. Since the term pricing methods is often interpreted as mutually exclusive methods, we prefer the term pricing practices, which is in line with our view on pricing as an organizational process that involves organizational practices in which organizations engage to some degree (Day 1994).

important because they represent the basic elements in the intemal and external environment of the firm on which prices can be based (Nagle and Holden 1995).

In the context of a pricing process, firms are likely to use all three types of information to some extent, rather than focus on a single one. This implies that the use of customer value, competition and cost information, should be seen as something of degree, rather than mutually exclusive categories. For this reason we will use the terms cost-informed, competition-informed and value-informed pricing, in stead of cost-based, competition-based and value-based pricing. This conceptualization is in line with Noble and Gruca's (1999a) finding that firms combine tost-based pricing with pricing strategies that require input of market information.

[Figure 1]

When engaged in a pricing process, organizations should indicate and choose from a number of acceptable price settings for a product. A clear understanding of the range of acceptable price settings will contribute to successful decision making (Monroe 1990). Whereas value- and competition-informed pricing enhance the organization's understanding of the upper-limit of this range, tost-informed pricing does so about the lower-limit (Monroe 1990). As such, we expect that value-, competition-, and cost-informed pricing will affect pricing success, as indicated in Figure 1. Since a pricing process generally starts with determining pricing objectives (Diamantopoulos 1991, Hague 1971), we define pricing success accordingly as the degree to which pricing objectives are achieved.

The degree to which pricing practices contribute to pricing success is contingent on the customer value context (Nagle and Holden 1995). We include two specific

dimensions: product advantage and competitive intensity. Product advantage refers to the sum of total benefits customers perceive to obtain compared to competitors' products. As such, it refers to the actual relative value the product offers. Competitive intensity relates to the degree to which product advantage is likely to be sustainable. Under conditions of high competitive intensity, created customer value erodes faster than under conditions of low competitive intensity. In the next section we will formulate expectations on how these dimensions moderate the relationship between value-, competition-, and cost-informed pricing and pricing success.

PRICING IN THE LIGHT OF RESOURCE-ADVANTAGE THEORY

According to resource-advantage theory (Hunt and Morgan 1995, 1997), a firm strives for superior financial performance by enabling its resources to capture a position of competitive advantage in a certain market or market segment. This position is captured: (1) if the firm creates more customer value than competitors do at lower or equal costs compared to competitors, or (2) if the firm creates equal customer value compared to competitors at lower costs. This situation is represented in Figure 2 by cells 2, 3 and 6 (see Hunt and Morgan 1995 for an elaborate explanation of the competitive position matrix). Firms can improve their competitive position by introducing proactive or reactive product innovations to the market. Proactive innovations offer superior customer value and reactive innovations offer customer value equal to competitors (Hunt and Morgan 1997).

[Figure 2]

Value-, competition-, and tost-informed pricing all may positively affect pricing success (Nagle and Holden 1995), but the degree to which they do depends on the customer value context of the product. Table 1 distinguishes between three contexts with respect to the customer value offered by a new product and the degree to which value is likely to be sustainable: (1) high product advantage; (2) high competitive intensity; and (3) high product advantage *and* high competitive intensity. In terms of Figure 2 product advantage represents the relative customer value dimension. Competitive intensity represents the degree to which a position of relative value captured by an innovation is likely to be sustained. For example, a product representing a high degree of advantage that contributes to a competitive position in cell 3 in Figure 2 at its launch, is in a highly competitive market pushed to cell 2 when a competitor launches a reactive innovation, or even to cell 1 when a competitor introduces a proactive innovation.

[Table 1]

Value-informed pricing informs the firm about the ceiling of the range of acceptable price settings for a new product. It establishes a maximum price that depends on the actual product advantage (Monroe 1990). Thus, the higher the benefits offered by the product, the larger the range of acceptable price settings, the more value-informed pricing will contribute to pricing success (cel1 1 in Table 1). Under conditions of high competitive intensity, relative value is likely to erode faster thereby narrowing the range of acceptable price settings (Monroe 1990). Thus, under conditions of high competitive intensity the effect of value-infotmed pricing on pricing success, is likely to decrease (cel1 2). In the situation that a product with a high advantage over competitors' products is launched in a market with intense competition, both effects are likely to occur: the

effect of value-informed pricing will increase because of the high product advantage, but at the same time it will decrease because of the intense competition. This means that the positive effect of value-informed pricing on pricing success is not expected to increase or decrease under this condition (cel1 3).

Competition-informed pricing informs the firm about the ceiling of the range of acceptable price settings, under the condition that the product is a reactive innovation: a product that is launched with the objective to match a competitor's position of superior value. Because the value offered by the product is equal to that of a competitor's product, the competitor's price setting determines the ceiling of the range of acceptable price settings. If the product does have a higher advantage than competitors' products, competition-informed pricing does not inform the firm about the acceptable range of price settings. Thus, the higher product advantage, the weaker the effect of competition-informed pricing on pricing success (cel1 4). Competitive intensity is not expected to affect the success of competition-informed pricing (cel1 5), because it will not affect the role of competition-informed pricing in determining the range of acceptable price settings. Under the condition of high product advantage and high competitive intensity, this means that we expect to find a negative effect (cel1 6).

Cost-informed pricing informs the firm about the lower-limit of the range of acceptable price settings (Monroe 1990). As such, tost-informed pricing will contribute more to pricing success when the lower limit of the price setting determines whether the product will Capture a position of competitive advantage or not. Reactive innovations only contribute to a position of competitive advantage if they can be brought to the market at a lower price (resulting from a lower cost position) compared to competitors

(cell 2 in Figure 2). As such, firms need a better understanding of their cost position when product advantage is relatively lower in order to understand to what extent they can undercut competitors' price settings of products that offer equal value. In other words: for products that have a high advantage over competitors' products, cost-informed pricing will contribute less to pricing success (cel1 7 in Table 1). In a situation of high competitive intensity, danger exists that the product is pushed to a position of lower value, in which it only contributes to a position of competitive advantage if the price can be dropped (cel1 1 in Figure 2) (Hunt and Morgan 1995). In order to do so, the firm will need a thorough understanding of its lower-limit in the range of acceptable price settings. Thus, in situations of high competitive intensity, the effect of tost-informed pricing on pricing success is expected to increase (cel1 8 in Table 1). Finally, if a product is launched with a high advantage over competitors' products in a market with intense competition, we expect that the negative effect of product advantage is neutralized by the positive effect of competitive intensity on pricing success (cel1 9 in Table 1).

The expectations indicated in Table 1 should be viewed in the context of industrial capita1 goods. First, customer value can relatively easy be quantified in these markets, for instance by an increase of the customer's turnover and/or a decrease of the customer's costs (Anderson and Narus 1998). Second, the purchasing process of industrial capita1 goods is likely to be less obscured by psychological effects in value- and price perceptions than it is in many other markets (Monroe 1990). The purchase of industrial capita1 goods is typically a group-process that involves intense information gathering (Ward and Webster 1991). Third, capita1 goods industries have relatively high unit costs

and fixed investments. As such, the consideration of cost information might be more important than in other markets (Noble and Gruca 1999b).

METHOD

Data Collection and Sample

Like in Noble and Gruca's (1999a) survey, a questionnaire was developed focussing on the latest new product development and launch in which the respondent's company had been involved. This approach avoids the critique on studies examining overall pricing objectives and strategies (Diamantopoulos 1991). Questionnaires were mailed to the marketing or genera1 manager in the company.

A questionnaire was mailed to 590 firms drawn from a comprehensive Belgian industry database. The respondents were contacted by telephone prior to the mailing in order to request co-operation. After receipt of the questionnaire, a recall-phone call was made and repeated every two weeks. Respondents were reminded up to three times. A total of 78 questionnaires was finally retumed, representing a response rate of 13.2 %. One questionnaire was removed from the sample since it had too many missing values. Overall, considering the complexity and sensitivity of the subject and length of the questionnaire, the response rate is satisfactory (Diamantopoulos and Schlegelmilch 1996). We tested nonresponse bias by comparing early, average and late respondents (Armstrong and Overton 1977). In t-tests for all variables included in this study, no significant differences in the mean responses were found. We asked respondents to indicate on a 10-point scale to what degree they were involved in the price setting of the new product. Nearly 80% of the respondents rated this degree with a 6 or higher,

suggesting that the questionnaire generally targeted the appropriate respondents within companies. Further we examined correlations between the degree to which respondents were involved in the price setting and the measures included in our study. NO significant correlations were found, suggesting that a possible bias in our results as a consequence of respondent-selection within companies is unlikely.

Our sample consists of firms from the electronics and engineering industries. This sample is based on a subset of the industries examined by Noble and Gruca (1999a), who focus on firms producing industrial capita1 goods. The industries that are included in our sample cover 73 % of the industries in Noble and Gruca's (1999a) net sample. Since it is the objective of our study to test the effectiveness of pricing practices, we conducted a series of interviews to select industries in which firms generally do not suffer from a high degree of demand uncertainty which may affect the degree to which prices are based on specific factors (Noble and Gruca 1999a).

Measurement

To measure value-, competition-, and tost-informed pricing as well as pricing success, new multiple-item measures were developed. After defining the domain of the constructs, an item pool was created on the basis of an extensive literature review and interviews in various industries (Churchill 1979). Items were measured using a 10-point scale, the upper-end indicating "played a major role in price setting", and the lower-end indicating "was not important at all in price setting". Many prior studies use mutually exclusive category indicators to measure pricing practices (e.g. Piercy 1981, Udell 1972), which do not accurately tap the degree to which different kinds of information are used. Also single

item measures (Tzokas et al. 2000) and summated scales (Noble and Gruca 1999a) are unlikely to accurately tap the information used in a pricing process, for two reasons. First, like the domains of many concepts in social sciences, the domains of value-, competition- and tost-informed pricing as defined in this study, are too broad to be measured by a single item (Churchill 1979). Second, asking managers about the information used in a pricing process may be prone to a social response bias, since managers are likely to justify prices on the basis of costs (Foxall 1972, Pearce 1956).

In order to minimize the risk of a social response bias, items on customer value, competition and cost factors were presented in the questionnaire in random order, also including a number of additional items not measuring any of the three groups of pricing factors included in this study. As a final check on a possible social response bias in value-, competition-, and tost-informed pricing, we conducted 10 interviews. In 5 interviews we asked managers to fill out a questionnaire with purified scales of which the items measuring factors on which prices are based were presented in random order. After they finished, we asked them to describe the pricing process of the new product, as well as to indicate what kind of information they used and on what information the final price setting is based, using the interview techniques advised by Pearce (1956) and Foxall (1972). In the other 5 interviews we followed the same procedure but started with the open questions and finished with the questionnaire. In all 10 interviews, the stories told by the managers generally fit the answers to the questionnaire. This leads us to conclude that a social response bias is not a problem in our scales.

With respect to pricing success, measured as the degree to which pricing objectives are achieved, firms may set multiple objectives, but generally set a profit and an output

objective of either a maximizing or satisficing nature (Diamantopoulos 1991). For this reason we included scale items regarding the degree to which profit and output objectives of both a maximizing and satisficing nature are achieved. Since these items loaded on one factor we constructed a genera1 scale of achieving price objectives as the dependent variable in our study. Items on the achievement of pricing objectives were also measured on a ZO-point scale, the lower end indicating "wasn't reached at all" and the upper end indicating "was completely reached". Measures on product advantage and competitive intensity were derived from Atuahene-Gima (1995).

After collecting the data, all measures used in this study were subjected to purification using factor analysis (Churchill 1979). Items that had very weak loadings or loaded on more than one factor were eliminated. To enhance discriminant validity, items that relate directly to pricing strategies as studied by Noble and Gruca (1999a) were included, like the degree to which the price is based on leaming curve effects (skimming), penetration, or product line. These items generally loaded on more than one factor which supports our view that pricing strategies are the result of a pricing process in which different sources of information are used. Next, the reliability coefficient alpha of each measure was calculated and item-to-total correlations were inspected. Items with low correlations were eliminated. The final scales closely represent the concepts' domains as they were initially defined.

The use of 10-point scales has the advantage that it is the most common rating scale in Belgium, for instance in the education system. It has a disadvantage in that extreme scores may strongly impact the mean of all scale items. For this reason we standardized item scores before calculating the scale means, which satisfies the condition that all scale

items are equally important (Churchill 1979). All scales used in this study are reported in the appendix.

Theory Testing Approach

The three contingency situations of new product launch were each tested in a moderating regression model, following Sharma, Durant and Gur-Arie's (1981) two-step approach for testing moderating effects. In the first step we ran moderating regressions analyses including simple effects of all components, as well as multiplicative interaction terms of independent and proposed moderator variables (e.g. value factors multiplied by product advantage) (Irwin and McClelland 2001). Significant interaction terms suggest the existence of pure moderators, which implies that the moderator variable (product advantage, competitive intensity) modifies the form of the relationship between the independent variable (e.g. tost-informed pricing) and the dependent variable (pricing success).

If no significant interaction is found one should examine the existence of a different type of moderators, so called homologizers (Sharma, Durant and Gur-Arie 1981). Homologizers influence the strength of the relationship, but don't interact with the predictor. Value-informed pricing might for instance explain more pricing success variance in situations of high product advantage than in situations of low product advantage. Homologizers can be tested for by partial correlation analysis within subgroups, created on the basis of a median split of the proposed moderating variable. A significant difference between the two situations using Fisher's Z-test, indicates the existence of a homologizer. Subsample analyses are only allowed if there is no significant

correlation of the proposed moderator variable with the dependent or independent variable (Slater and Narver 1994).

RESULTS

The results of the three moderating regression analyses are presented in Table 2. Results of subsample tests for homologizers are listed in footnotes below Table 2.

[Table 2]

The simple effects suggest that value- and tost-informed pricing generally contribute to pricing success, whereas competition-informed pricing generally has no effect. These findings suggest that in genera1 value-informed pricing informs the firm about the upper-limit and tost-informed pricing about the lower limit in the range of acceptable price settings and that a better understanding of this range enhances pricing success. The simple effects also show a significant relationship between competitive intensity and pricing success. This is in line with Diamantopoulos and Mathews' (1994) finding that pricing objectives depend on the firm's environment. More specifically, we explain the effect as that firms in highly competitive environments are more satisfíed with achieving price objectives than firms in stable environments and thus report higher scores on pricing success.

With respect to our findings on high product advantage, we find a significant positive effect for value-informed and a significant negative effect for competition-informed pricing. We find no effect for tost-informed pricing, but a subsample test reveals that cost-informed pricing contributes signifkantly less to pricing success in situations of high

product advantage than in situations of low product advantage. These findings are in line with our expectations.

In situations of high competitive intensity, we find a negative effect for value-informed, a positive effect for tost-informed and no effect for competition-informed pricing, which confirms our expectations. A subsample test here is not allowed since there is a significant correlation between competitive intensity and pricing success.

In situations of high product advantage and competitive intensity, we find no effect for value-informed, a negative effect for competition-informed and a positive effect for cost-informed pricing. A subsample test on value-informed pricing is not significant. The positive effect of cost-informed pricing is contrary to our expectations. We will discuss this finding in the next section.

DISCUSSION

The objective of our paper is to improve our understanding of successful practices by means of which firms arrive at price decisions, as this has been repeatedly emphasized as a major gap in empirical pricing literature (Bonoma, Critenden and Dolan 1988, Monroe and Mazumdar 1988, Noble and Gruca 1999b). Specifically, we focused on the degree to which different types of information contribute to pricing success under different conditions of customer value creation and different degrees to which customer value is likely to be eroded by competitive forces. Our results show that the success of using information on customer value, competition and costs in price decisions, is contingent on the customer value created and the competitive intensity of the market. This suggests that the success of pricing practices is not as straightforward as sometimes suggested (e.g.

Cressman 1999). In addition, we note that prior surveys on the use of information in price decisions may suffer from shortcomings with respect to several measurement issues (Coe 1990, Noble and Gruca 1999a, Piercy 198 1, Tzokas, Hart, Argouslidis and Saren 2000, Udell 1972).

Our results on price decisions for new product introductions in markets for industrial capita1 goods suggest that value-informed pricing helps the firm in achieving its pricing objectives. The rational behind this finding is that value-informed pricing generally increases the organization's understanding about the upper-limit in the range of acceptable price settings. If product advantage is high, the upper-limit of the range of acceptable price settings is higher, and value-informed pricing thus becomes more important. However, in markets with intense competition, the contribution of value-informed pricing to pricing success decreases, since the actual advantage is less sustainable over time. If the product has no superior advantage over competitors' products, but aims to attack a competitor's superior position - a reactive innovation - competition-informed pricing contributes more to success. In this situation, competition-informed pricing informs the organization on the upper-limit of acceptable prices for this type of innovation.

Our results also suggest that cost-informed pricing increases the organization's understanding of the lower-limit of the range of acceptable price settings, thereby contributing to pricing success. This is especially the case in competitively intense markets, where products might need to compete more on price over time. The contribution of cost-informed pricing to pricing success is also contingent on product advantage. However, we find here a subtle difference compared to our expectations.

Products with a low advantage compared to competitors (reactive innovations) only obtain a position of competitive advantage if they can be offered to customers at a lower price than competitors' products. For this reason cost-informed pricing has a strong effect on pricing success for this type of innovation. However, this finding doesn't imply that tost-informed pricing has a negative effect on pricing success for products with a high advantage. For this type of innovation, organizations may also inform themselves about the lower-limit of the acceptable price settings, but this practice generally does not increase, nor decreases pricing success. As such, the only situation in which cost-informed pricing is decreasingly successful, is under very low competitive intensity.

In addition, our study comes across four measurement issues that may have affected Noble and Gruca's (1999a) findings as well as findings from other studies. First, pricing practices are different from pricing strategies and thus should not be included in the same measurement instrument (Coe 1990, Noble and Gruca 1999a). Pricing practices refer to the use of information in a pricing process that leads to price decisions, and pricing strategies refer to how the firm tries to achieve its pricing objectives in the market place. Second, the use of all three kinds of information (customer value, competition and costs) should be included. Including only cost information in a study as Noble and Gruca (1999a) do, will lead to an incomplete picture of the degree to which firms neglect market information in their price decisions. Third, in the context of a pricing process, firms are unlikely to rely exclusively on a single kind of information. Thus, a measure with multiple mutually exclusive categories (Coe 1990, Piercy 1981, Udell 1972) is less likely to capture the diversity in the types of information used in a pricing process. Fourth, measuring the degree to which firms use different types of information in a pricing

process might be prone to a social response bias. Managers tend to justify prices in terms of costs in order to leave an impression of a "fair" pricing practice (Pearce 1956, Foxall 1972). For these reasons we developed new multiple-item measures on the concepts of cost-informed, value-informed, and competition-informed pricing that indicate the degree to which different kinds of information are used to arrive at a price decision.

Taking into account these measurement issues and the contribution of cost information to pricing success, the high percentage of firms that indicated that they engage in cost-based pricing in Noble and Gruca's (1999a) research does not seem surprising after all. Their finding may not imply that these firms are ignorant of their market, the contrary may be the case: firms evaluate their competitive position for which a clear understanding of their cost positions is a necessary condition for the product to survive on the market. Our findings are in line with Noble and Gruca's (1999a) finding that demand uncertainty antecedes tost-based pricing. In situations of high competitive intensity, the demand for the new product becomes difficult to predict. Under these circumstances firms don't just rely increasingly on cost information, it also helps them to make successful price decisions.

As suggested by Nagle and Holden (1995) and Cressman (1999) our findings indicate that creating customer value, followed by a price decision based on this, is a route to pricing success. However, there is no simple rule that states that pricing success will improve if prices are based more on customer value information. Also the degree to which value can be sustained is an important consideration. In situations in which firms have little competition, or value can be sustained otherwise - for instance through protection by patents - a combination of creating customer value and value-informed

pricing will pay off. We find that new products that intend to match the value offered by competitors, are best priced on the basis of competitor information. For example, this seems to be a safe approach for companies following strong market leaders in highly concentrated markets. The finding that the use of cost information has no negative effect on pricing success in situations in which the firm has created superior customer value, and that it even has a positive effect in situations of intense competition, shines a new light on the results of prior studies. For instance, Coe (1990) interpreted an increase of tost-based pricing throughout the 1980s as a consequence of a parallel decrease of innovation strategies. Our results suggest that the increased use of cost information in pricing can also be caused by the growing competition during that decade.

Limitations and Future Research

This study also has some limitations that present opportunities for future research. First, our study is limited to the selected industries and in its geographical scope. We limited our sample to a subset of industries examined by Noble and Gruca (1999a). Future research may test the generalizability of findings presented in this study in contexts other than industrial capita1 goods.

Our study is theoretically limited to dimensions of product advantage and competitive intensity, that moderate the effectiveness of pricing practices in new product launch. Following the rationale of resource-advantage theory (Hunt and Morgan 1995), also relative product costs may impact the effectiveness of pricing practices. This is an interesting avenue for further research. Future research may also focus on other aspects of the pricing process, such as the degree to which it is formally planned, the involvement of

different business functions, and its relationships with actual resources, such as market orientation.

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Figure 1: Conceptual Framework

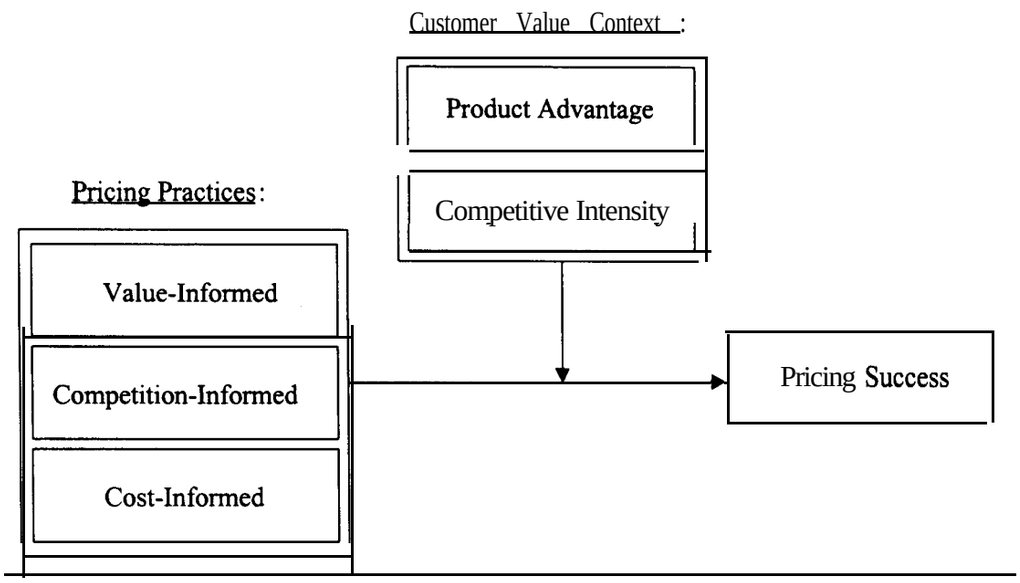

Figure 2: Competitive Position Matrix [a]

Relative Resource Costs	Relative Resource-Produced Value: Lower	Parity	Superior
Lower	1 Indeterminate Position	2 Competitive Advantage	3 Competitive Advantage
Parity	4 Competitive Disadvantage	5 Parity Position	6 Competitive Advantage
Higher	7 Competitive Disadvantage	8 Competitive Disadvantage	9 Indeterminate Position

[a]Read: The marketplace position of competitive advantage identified as Cell 3 results from the firm, relative to its competitors, having a resource assortment that enables it toproduce an offeringfor some market segment(s) that (a) is perceived to be of superior value and (b) is produced at lower costs.

Source: Hunt and M organ (1997)

Table 1: Expectations on the Success of Pricing Practices in Different Situations of Value Creation and Sustainability[a]

Customer Value Context: / Pricing Practice:	High product advantage	High competitive intensity	High product advantage and high competitive intensity
Value-Informed	1 +	2	3 **0**
Competition-Informed	4	5 **0**	6
Cost-Infonned	7	8 +	9 0

[a]**Read**: (cel1 1) the **higher** product advantage, the more **value-informed** pricing **contributes** to pricing **success.**

Table 2: Results of Moderating Regression Analyses (Standardized Coefficients)
Dependent variable: Pricing Success

	Product Advantage	Competitive Intensity	Product Advantage and Competitive Intensity
Simple effects:			
Value-informed pricing	.55[a]	.25[c]	.39[b]
Competition-informed pricing	-.04	.02	.08
Cost-informed pricing	.29[b]	.22[d]	.17
Product advantage	.09		.18
Competitive intensity		.31[b]	.24[d]
Product advantage * competitive intensity			-.16
Interaction effects of product advantage with:			
Value-informed pricing	.32[c]		
Competition-informed pricing	-.33[b]		
Cost-informed pricing	.06[1]		
Interaction effects of comnetitive intensity:			
Value-informed pricing		-.37[b]	
Competition-informed pricing		-.03	
Cost-informed pricing		.21[c]	
Interaction effects of product advantage * competitive intensity. with:			
Value-informed pricing			-.14[2]
Competition-informed pricing			-.28[c]
Cost-informed pricing			.31[c]
Df	69, 7	69, 7	67, 9
F	5.82"	6.78"	5.00"
Adj usted R^2	.31	.35	.32

a: $p < .001$
b: $p < .01$
c: $p < .05$
d: $p < .1$

[1]: negative homologizer: $r_{low} = .33, r_{high} = .09, z = 5.64, p < .000$.
[2]: no homologizer found: $r_{low} = ..35, r_{high} = .40$, z = 1.17, not significant.

APPENDIX: SCALE ITEMS AND RESULTS OF FACTOR ANALYSIS

Pricing Practices

To what degree were the following factors included in the price setting process of the new product? In other words: to what extent did you take into account the following elements while determining the price of the new product?

Value-Informed Pricing (Alpha = .81) (Eigen value = 3.05)	Factor loading
The advantages of the product compared to competitors' products	.83
The customer's perceived value of the product	.63
The advantages the new product offers to the customer	.72
The balance between advantages of the product and price	.64
The advantages of the product compared to substitutes	.77

Competition-Informed Pricing (Alpha = .91) (Eigen value = 6.52)	Factor loading
The price of competitors' products	.78
The competitor's current price strategy	.90
The estimation of competitor's strength to react	.81
The market structure (number and strength of competitors)	.87
The degree of competition on the market	.79
The competitive advantages of competitors on the market	.76

Cost-Informed Pricing (Alpha = .75) (Eigen value = 2.41)	Factor loading
The variable costs of the product	.82
The price necessary for break-even	.66
The investments in the new product	.75
The share of fixed costs in the cost price	.75

Product advantage (Alpha = .74) (Eigen value = 1.61)	Factor loading
Please indicate to what degree the following statements are typical for the new product:	
The product offered higher quality than competing products (Atuahene-Gima 1995)	.83
The product solved problems customers have with competing products (Atuahene-Gima 1995)	.64
The product was very innovative and substituted an inferior altemative (Atuahene-Gima 1995)	.78

Competitive Intensity (Alpha = .73) (Eigen value = 1.49)	Factor loading
Please indicate to what degree the following statements are typical for the market in which the new product is launched:	
Intense price competition (Atuahene-Gima 1995)	.88
Strong competitor sales, promotion and distribution systems (Atuahene-Gima 1995)	.63
Strong and good quality competing products or services (Atuahene-Gima 1995)	.55

Pricing Success (Alpha = .89)	Factor loading
(Eigen value = 5.16)	
To what extent were the following price objectives effectively achieved with the new product:	
Achieving a certain market share	.68
Maximizing market share	.74
Maximizing profits	.73
Achieving a certain pay back period	.77
Achieving a predetermined ROI	.82
Realize a certain growth in profits	.83
Maximize the profitability of the product over the entire life cycle	.69

Results of factor analysis are reported after a varimax rotation.